

We Claim:

1. A method of constructing a model generating one or more job performance criteria predictors based on input pre-hire information, the method comprising:
 - from a plurality of applicants, electronically collecting pre-hire information from the applicants;
 - 5 collecting post-hire information for the applicants based on job performance of the applicants after hire; and
 - from the pre-hire information and the post-hire information, generating an artificial intelligence-based predictive model operable to generate one or more job
 - 10 performance criteria predictors based on input pre-hire information from new applicants.
2. A computer-readable medium comprising computer-executable instructions for performing the method of claim 1.
- 15 3. The method of claim 1 further comprising:
 - limiting the applicants for the model to those from a particular geographic area;
 - and
 - constructing the model as a geographically-specialized model.
- 20 4. The method of claim 1 further comprising:
 - limiting the applicants for the model to those with a particular educational level;
 - and
 - constructing the model as an educational level-specialized model.
- 25 5. The method of claim 1 further comprising:
 - limiting the applicants for the model to those with a particular occupation; and
 - constructing the model as an occupationally-specialized model.

6. The method of claim 1 wherein the model accepts one or more inputs, the method further comprising:

identifying in the pre-hire information one or more characteristics that are ineffective predictors; and

5 omitting the ineffective predictors as inputs to the model.

7. The method of claim 1 wherein the pre-hire information comprises one or more characteristics, the method further comprising:

10 identifying in the pre-hire information one or more characteristics that are ineffective predictors; and

providing an indication that the characteristics no longer need to be collected.

8. The method of claim 1 wherein job performance criteria predictors comprise a predictor indicating whether a job candidate will be voluntarily terminated.

15 9. The method of claim 1 wherein job performance criteria predictors comprise a predictor indicating whether a job candidate will be eligible for rehire after termination.

20 10. The method of claim 1 wherein the pre-hire information comprises one or more characteristics, the method further comprising:

identifying in the pre-hire information one or more characteristics that are ineffective predictors; and

25 responsive to identifying the ineffective predictors, collecting new pre-hire information not including the ineffective predictors; and
building a refined model based on the new pre-hire information.

11. The method of claim 10 further comprising:
adding one or more new characteristics to be collected when collecting the new
pre-hire information.

5 12. The method of claim 11 further comprising:
evaluating the effectiveness of the new characteristics.

13. A method of constructing a model predicting employment performance
based on a set of input employment parameters, the method comprising:

10 selecting a set of input parameters indicating pre-hire characteristics of an
employee, wherein the pre-hire characteristics are available before hiring the employee
and are collected electronically from the employee;
selecting a set of output parameters indicating post-hire outcomes available after
hiring the employee; and
15 training a neural network with the input and output parameters.

14. The method of claim 13 further comprising:
choosing a set of one or more candidate characteristics, wherein the characteristics
indicate data available before hiring an employee;
20 testing effectiveness of the candidate characteristics in predicting the post-hire
characteristics; and
responsive to determining the candidate information is effective, incorporating the
candidate information into the model.

15. A method for constructing an artificial intelligence-based employment selection process based on pre-hire information comprising personal employee characteristics and post-hire information comprising employee job performance observation information, the method comprising:

5 generating a plurality of predictive artificial intelligence models based on the pre-hire and post-hire information, wherein at least two of the artificial intelligence models are of different types;

 testing effectiveness of the models to select an effective model; and

 applying the effective model to predict post-hire information not yet observed.

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16. The method of claim 15 wherein at least one of the models is a neural network.

17. The method of claim 16 wherein at least one of the models is an expert system.

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18. The method of claim 15 wherein at least one of the models is a fuzzy logic system.

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19. The method of claim 15 wherein at least one of the models is an information theoretic model.

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20. The method of claim 15 wherein at least one of the models is a neuro-fuzzy model.

21. The method of claim 15 further comprising:

 identifying at least one of the models as exhibiting impermissible bias; and

 avoiding use of the models exhibiting impermissible bias.

22. The method of claim 21 wherein the impermissible bias is against a protected group of persons.

23. A computer-implemented method of refining an artificial-intelligence based employee performance selection system, the method comprising:
5 collecting information via an electronic device presenting a set of questions to employment candidates, wherein the questions are stored in a computer-readable medium;
testing effectiveness of at least one of the questions in predicting the post-hire information; and
10 responsive to determining the question is ineffective, deleting the question from the computer-readable medium.

24. The method of claim 23 wherein effectiveness comprises predictiveness tested based on information theoretic techniques.

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25. A computer-readable medium comprising a predictive model, the model comprising:
inputs for accepting one or more characteristics based on pre-hire information for a job applicant;
20 one or more predictive outputs indicating one or more predicted job effectiveness criteria based on the inputs,
wherein the predictive model is an artificial intelligence-based model constructed from pre-hire data electronically collected from a plurality of employees and post-hire data, and the model generates its predictive outputs based on the similarity of the inputs to 25 pre-hire data collected for the plurality of employees and their respective post-hire data.

26. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating a rank for the job applicant.

27. The computer-readable medium of claim 26 wherein the rank is relative to other applicants.

28. The computer-readable medium of claim 26 wherein the rank is relative to
5 the plurality of employees.

29. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating probability of group membership for the job applicant.

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30. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating predicted tenure for the job applicant.

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31. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating predicted tenure for the job applicant.

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32. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating predicted number of accidents for the job applicant.

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33. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating whether the applicant will be involuntarily terminated.

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34. The computer-readable medium of claim 25 wherein the predictive model comprises a predictive output indicating whether the applicant will be eligible for rehire after termination.

100-200-300-400-500-600-700-800-900

35. A computer-readable medium comprising a refined predictive model, the model comprising:

inputs for accepting one or more characteristics based on pre-hire information for a job applicant;

5 one or more predictive outputs indicating one or more predicted job effectiveness criteria based on the inputs,

wherein the predictive model is constructed from pre-hire data electronically collected from a plurality of employees and post-hire data, wherein the pre-hire data is based on a question set refined by having identified and removed one or more questions as ineffective.

10 as ineffective.

36. The computer-readable medium of claim 35 wherein the ineffective questions are identified via an information transfer technique.

15 37. The computer-readable medium of claim 35 wherein the model is an
artificial intelligence-based model.

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